

Photonic Crystal Fiber-Based High Sensitivity Gas Sensor, Phase I

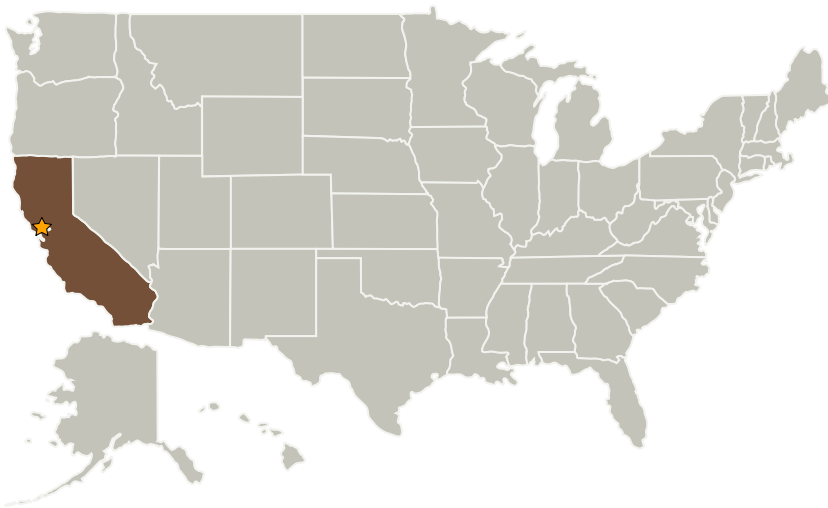
Completed Technology Project (2006 - 2006)



Project Introduction

Los Gatos Research, Inc. proposes to develop a lightweight, compact, rugged, near-infrared gas-sensing spectroscopy instrument to accurately measure the abundance of various gases indicative of the presence of life. These gases include carbon dioxide, ammonia, and methane. This instrument will be the first low-cost, remotely operable all fiber-based Integrated Cavity Output Spectroscopy sensor capable of measuring gases such as carbon dioxide, oxygen, and methane with sufficient precision to indicate the presence of biological activity on non-Earth bodies, particularly Mars and Europa. The proposed prototype sensor includes the novel use of hollow photonic crystal fibers, which further enables accurate measurement of even small samples of gas (approximately 1 microliter). The project will also leverage Los Gatos Research's prior work developing rugged, autonomous gas sensors for extreme environments that NASA is currently using.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Los Gatos Research	Supporting Organization	Industry	Mountain View, California



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Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations

California

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX07 Exploration Destination Systems
 - └ TX07.1 In-Situ Resource Utilization
 - └ TX07.1.1 Destination Reconnaissance and Resource Assessment